

Eastern Maine Medical Center  
Penobscot County  
Bangor, Maine  
A-184-71-K-A/R/M

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**Departmental  
Findings of Fact and Order  
Air Emission License**

After review of the air emission license renewal application, staff investigation reports, and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 M.R.S.A, Section 344 and Section 590, the Department finds the following facts:

**I. REGISTRATION**

**A. Introduction**

Eastern Maine Medical Center (EMMC) of Bangor, Maine has applied to renew their Air Emission License, permitting the operation of emission sources associated with their hospital. Incorporated in this renewal is the addition of a small generator inadvertently missed during the last renewal as well as a request to allow all boilers at EMMC to burn #2 fuel oil and to burn a combination of fuel equivalent to 270,000 MMBtu/year.

**B. Emission Equipment**

EMMC is authorized to operate the following air emission units:

**Fuel Burning Equipment**

Equipment	Date of Construction	Maximum Capacity (MMBtu/hr)	Fuel Type, %Sulfur	Maximum Firing Rate	Stack #
Boiler #1	1972	14.6	#6, 0.7%	96 gal/hr	1
			#2, 0.5%	104.3 gal/hr	
Boiler #2	1972	14.6	#6, 0.7%	96 gal/hr	1
			#2, 0.5%	104.3 gal/hr	
Boiler #3	1972	14.6	#6, 0.7%	96 gal/hr	1
			#2, 0.5%	104.3 gal/hr	
Boiler #4	1974	21.0	#6, 0.7%	139.5 gal/hr	1
			#2, 0.5%	150 gal/hr	
			Natural Gas	20,588 scf/hr	
Boiler #5	1974	21.0	#6, 0.7%	139.5 gal/hr	1
			#2, 0.5%	150 gal/hr	
			Natural Gas	20,588 scf/hr	
Boiler #6	1985	21.0	#6, 0.7%	139.5 gal/hr	1
			#2, 0.5%	150 gal/hr	
			Natural Gas	20,588 scf/hr	

### Electrical Generation Equipment

Equipment	Engine Firing Rate (gal/hr)	Maximum Capacity (MMBtu/hr)	Stack #
Generator #1	35.6	4.88	2
Generator #2	107	14.6	3
Generator #3	107	14.6	4
<b>Generator #4</b>	11	1.5	5

**Bold** indicates new equipment to license.

#### C. Application Classification

The application for EMMC includes the licensing of increased emissions and the addition of an existing emergency generator. Therefore, the license is considered to be a minor modification and minor revision incorporated in a renewal.

## II. BEST PRACTICAL TREATMENT (BPT)

#### A. Introduction

In order to receive a license the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in Chapter 100 of the Air Regulations. Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

BPT for existing emissions equipment means that method which controls or reduces emissions to the lowest possible level considering:

- the existing state of technology;
- the effectiveness of available alternatives for reducing emissions from the source being considered; and
- the economic feasibility for the type of establishment involved.

#### B. Boilers #1, #2 and #3

Boilers #1, #2 and #3 each have a heat input capacity of 14.6 MMBtu/hr and fire #6 fuel oil with a maximum sulfur content of 0.7% or #2 fuel oil with a maximum sulfur content of 0.5%. Each boiler was manufactured in 1972 and are therefore not subject to New Source Performance Standards (NSPS) Subpart Dc.

BPT for Boilers #1, #2 and #3 is the following:

- Use of 0.7% sulfur #6 fuel oil or 0.5% sulfur #2 fuel oil.
- SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC emission data for #6 fuel oil combustion was taken from AP-42 dated 10/96 for industrial boilers.

- Emission rates for PM when firing #6 fuel oil are based on BPT of 0.1 lb/MMBtu.
- PM, PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC emission data for #2 fuel oil combustion was taken from manufacturer “not to exceed” values.
- Visible emissions from Stack 1 shall not exceed an opacity of 30 percent on a six (6) minute block average basis, except for no more than two (2) six (6) minute block averages in a 3-hour period.

C. Boilers #4, #5 and #6

Boilers #4, #5 and #6 each have a heat input capacity of 21.0 MMBtu/hr and fire #6 fuel oil with a maximum sulfur content of 0.7%, #2 fuel oil with a maximum sulfur content of 0.5% as well as natural gas. Boiler #4 and #5 were manufactured in 1974 and Boiler #6 was manufactured in 1985. These boilers are therefore not subject to New Source Performance Standards (NSPS) Subpart Dc.

BPT for Boiler #4, #5 and #6 is the following:

- Use of 0.7% sulfur #6 fuel oil or 0.5% sulfur #2 fuel oil.
- Use of natural gas.
- SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC emission data for #6 fuel oil combustion was taken from manufacturer “not to exceed” values.
- PM, PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC emission data for #2 fuel oil combustion was taken from manufacturer “not to exceed” values.
- SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC emission data for natural gas combustion was based on manufacturer performance data.
- Emission rates for PM when firing #6 fuel oil are based on BPT of 0.1 lb/MMBtu.
- Emission rates for PM when firing natural gas are based on BPT of 0.01 lb/MMBtu.
- Visible emissions from Stack 1 shall not exceed an opacity of 30 percent on a six (6) minute block average basis, except for no more than two (2) six (6) minute block averages in a 3-hour period.

D. Definition of “Emergency”

Per MEDEP Chapter 100, the definition of emergency for Chapter 115 purposes is the following:

“... any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology based emission limitation under the license, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.”

Therefore, by definition, a diesel used for load shedding purposes (also known as a “Dispatchable Load Generator”) is not considered an “Emergency Generator”.

E. Emergency Diesel Units

EMMC has four emergency diesel generators (Generator #1, #2, #3, #4).

BPT for the emergency generators is the following:

1. Emission limits for PM and PM<sub>10</sub> are regulated by MEDEP Regulations, Chapter 103.
2. MEDEP Chapter 106 regulates fuel sulfur content, however the use of 0.05% sulfur by weight fuel is BPT.
3. NO<sub>x</sub>, CO and VOC emission rates for Generator #1, #2 and #3 were based upon AP-42 data dated 10/96 for diesel engines larger than 600 hp.
4. NO<sub>x</sub>, CO and VOC emission rates for Generator #4 were based upon AP-42 data dated 10/96 for diesel engines smaller than 600 hp.
5. An operational limit of 500 hours per year for each generator.
6. Opacity from each diesel engine shall not exceed 30% on a six- (6) minute block average basis, except for two (2) six (6) minute block averages in a 3-hour period.

F. Annual Emission Restrictions

EMMC is limited to the following fuel usage and has the following annual emissions, based on a 12 month rolling total:

- Combined fuel #2, #6 and natural gas fuel combustion equivalent to 270,000 MMBtu per year
- 500 hours of operation per year per emergency generator

**Total Annual Emissions for the Facility**  
(used to calculate the annual license fee)

<u>Pollutant</u>	<u>Tons/yr</u>
PM	14.6
PM <sub>10</sub>	14.6
SO <sub>2</sub>	99.7
NO <sub>x</sub>	89.7
CO	27.9
VOC	5.7

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**III. AMBIENT AIR QUALITY ANALYSIS**

According to the Maine Regulations Chapter 115, the level of air quality analyses required for a minor new source shall be determined on a case-by-case basis. Based on the information available in the file, and the similarity to existing sources, Maine Ambient Air Quality Standards (MAAQS) will not be violated by this source.

**ORDER**

Based on the above Findings and subject to conditions listed below the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-184-71-K-A/R/M subject to the following conditions:

- (1) Employees and authorized representatives of the Department shall be allowed access to the licensee's premises during business hours, or any time during which any emissions units are in operation, and at such other times as the Department deems necessary for the purpose of performing tests, collecting samples, conducting inspections, or examining and copying records relating to emissions (Title 38 MRSA §347-C).
- (2) The licensee shall acquire a new or amended air emission license prior to commencing construction of a modification, unless specifically provided for in Chapter 115.
- (3) Approval to construct shall become invalid if the source has not commenced construction within eighteen (18) months after receipt of such approval or if construction is discontinued for a period of eighteen (18) months or more. The Department may extend this time period upon a satisfactory showing that an extension is justified, but may condition such extension upon a review of either the control technology analysis or the ambient air quality standards analysis, or both.
- (4) The licensee shall establish and maintain a continuing program of best management practices for suppression of fugitive particulate matter during any period of construction, reconstruction, or operation which may result in fugitive

- dust, and shall submit a description of the program to the Department upon request.
- (5) The licensee shall pay the annual air emission license fee to the Department, calculated pursuant to Title 38 MRSA §353.
  - (6) The license does not convey any property rights of any sort, or any exclusive privilege.
  - (7) The licensee shall maintain and operate all emission units and air pollution control systems required by the air emission license in a manner consistent with good air pollution control practice for minimizing emissions.
  - (8) The licensee shall maintain sufficient records, to accurately document compliance with emission standards and license conditions and shall maintain such records for a minimum of six (6) years. The records shall be submitted to the Department upon written request.
  - (9) The licensee shall comply with all terms and conditions of the air emission license. The filing of an appeal by the licensee, the notification of planned changes or anticipated noncompliance by the licensee, or the filing of an application by the licensee for the renewal of a license or amendment shall not stay any condition of the license.
  - (10) The licensee may not use as a defense in an enforcement action that the disruption, cessation, or reduction of licensed operations would have been necessary in order to maintain compliance with the conditions of the air emission license.
  - (11) In accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department, the licensee shall:
    - (i) perform stack testing to demonstrate compliance with the applicable emission standards under circumstances representative of the facility's normal process and operating conditions:
      - a. within sixty (60) calendar days of receipt of a notification to test from the Department or EPA, if visible emissions, equipment operating parameters, staff inspection, air monitoring or other cause indicate to the Department that equipment may be operating out of compliance with emission standards or license conditions; or
      - b. pursuant to any other requirement of this license to perform stack testing.

- (ii) install or make provisions to install test ports that meet the criteria of 40 CFR Part 60, Appendix A, and test platforms, if necessary, and other accommodations necessary to allow emission testing; and
  - (iii) submit a written report to the Department within thirty (30) days from date of test completion.
- (12) If the results of a stack test performed under circumstances representative of the facility's normal process and operating conditions indicate emissions in excess of the applicable standards, then:
  - (i) within thirty (30) days following receipt of such test results, the licensee shall re-test the non-complying emission source under circumstances representative of the facility's normal process and operating conditions and in accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department; and
  - (ii) the days of violation shall be presumed to include the date of stack test and each and every day of operation thereafter until compliance is demonstrated under normal and representative process and operating conditions, except to the extent that the facility can prove to the satisfaction of the Department that there were intervening days during which no violation occurred or that the violation was not continuing in nature; and
  - (iii) the licensee may, upon the approval of the Department following the successful demonstration of compliance at alternative load conditions, operate under such alternative load conditions on an interim basis prior to a demonstration of compliance under normal and representative process and operating conditions.
- (13) Notwithstanding any other provision in the State Implementation Plan approved by the EPA or Section 114(a) of the CAA, any credible evidence may be used for the purpose of establishing whether a person has violated or is in violation of any statute, regulation, or Part 70 license requirement.
- (14) The licensee shall maintain records of malfunctions, failures, downtime, and any other similar change in operation of air pollution control systems or the emissions unit itself that would affect emissions and that is not consistent with the terms and conditions of the air emission license. The licensee shall notify the Department within two (2) days or the next state working day, whichever is later, of such occasions where such changes result in an increase of emissions. The licensee shall report all excess emissions in the units of the applicable emission limitation.
- (15) Upon written request of the Department, the licensee shall establish and maintain such records, make such reports, install, use and maintain such monitoring equipment, sample such emissions (in accordance with such methods, at such locations, at such intervals, and in such manner as the Department shall

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prescribe), and provide other information as the Department may reasonably require to determine the licensee's compliance status.

(16) Boilers #1, #2, #3

A. Emissions from Boiler #1, #2 and #3 shall each not exceed the following when firing #2 fuel oil:

<u>Pollutant</u>	<u>lb/MMBtu</u>	<u>lb/hr</u>
PM	0.024	0.35
PM <sub>10</sub>	n/a	0.35
SO <sub>2</sub>	n/a	7.35
NO <sub>x</sub>	n/a	3.65
CO	n/a	1.02
VOC	n/a	0.37

B. Emissions from Boilers #1, #2 and #3 shall each not exceed the following when firing #6 fuel oil:

<u>Pollutant</u>	<u>lb/MMBtu</u>	<u>lb/hr</u>
PM	0.10	1.46
PM <sub>10</sub>	n/a	1.46
SO <sub>2</sub>	n/a	10.74
NO <sub>x</sub>	n/a	6.57
CO	n/a	1.10
VOC	n/a	0.51

(17) Boilers #4, #5 and #6

A. Emissions from Boiler #4, #5 and #6 shall each not exceed the following when firing #2 fuel oil:

<u>Pollutant</u>	<u>lb/MMBtu</u>	<u>lb/hr</u>
PM	0.024	0.50
PM <sub>10</sub>	n/a	0.50
SO <sub>2</sub>	n/a	10.58
NO <sub>x</sub>	n/a	5.25
CO	n/a	1.47
VOC	n/a	0.53



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- B. Emissions from Boilers #4, #5 and #6 shall each not exceed the following when firing #6 fuel oil:

<u>Pollutant</u>	<u>lb/MMBtu</u>	<u>lb/hr</u>
PM	0.10	2.10
PM <sub>10</sub>	n/a	2.10
SO <sub>2</sub>	n/a	15.44
NO <sub>x</sub>	n/a	9.45
CO	n/a	1.58
VOC	n/a	0.74

- C. Emissions from Boilers #4, #5 and #6 shall each not exceed the following when firing natural gas:

<u>Pollutant</u>	<u>lb/MMBtu</u>	<u>lb/hr</u>
PM	0.01	0.21
PM <sub>10</sub>	n/a	0.21
SO <sub>2</sub>	n/a	0.01
NO <sub>x</sub>	n/a	2.48
CO	n/a	3.15
VOC	n/a	0.34

(18) Fuel oil sulfur requirements

- A. The maximum sulfur content of #6 fuel oil shall not exceed 0.7% by weight. Compliance is based on fuel receipts from the supplier indicating the percent sulfur of the fuel.
- B. The maximum sulfur content of #2 fuel oil shall not exceed 0.5% by weight. Compliance is based on fuel receipts from the supplier indicating the fuel was #2 fuel oil.

(19) Boiler visible emission requirements

Visible emissions from Stack 1 shall not exceed an opacity of 30 percent on a six (6) minute block average basis, except for no more than two (2) six (6) minute block averages in a 3-hour period.

(20) Emergency Generators

A. Emissions from Generator #1 shall not exceed the following:

<u>Pollutant</u>	<u>lb/MMBtu</u>	<u>lb/hr</u>
PM	0.12	0.59
PM <sub>10</sub>	n/a	0.59
SO <sub>2</sub>	n/a	0.25
NO <sub>x</sub>	n/a	15.62
CO	n/a	4.15
VOC	n/a	0.49

B. Emissions from Emergency Generator #2 and #3 shall each not exceed the following:

<u>Pollutant</u>	<u>lb/MMBtu</u>	<u>lb/hr</u>
PM	0.12	1.75
PM <sub>10</sub>	n/a	1.75
SO <sub>2</sub>	n/a	0.75
NO <sub>x</sub>	n/a	46.72
CO	n/a	12.41
VOC	n/a	1.46

C. Emissions from Emergency Generator #4 shall not exceed the following:

<u>Pollutant</u>	<u>lb/hr</u>
PM	0.47
PM <sub>10</sub>	0.47
SO <sub>2</sub>	0.08
NO <sub>x</sub>	6.62
CO	1.43
VOC	0.53

D. Generators #1, #2, #3 and #4 each shall be limited to 500 hours per year of operation, based on a 12 month rolling total. An hour meter shall be maintained and operated on each emergency diesel generator.

E. The sulfur content of the fuel shall be less than or equal to 0.05% by weight, demonstrated by fuel receipts from the supplier.

F. A log documenting the dates, times and reasons for operation for each generator shall be kept.

G. Visible emissions from each emergency generator shall not exceed 30% opacity on a six- (6) minute block average basis, except for two (2) six (6) minute block averages in a 3-hour period.

(21) Fuel use limits

Combined #2 fuel oil, #6 fuel oil and natural gas heat input into all of the boilers shall not exceed 270,000 MMBtu on a 12-month rolling total. The following shall be used to determine the monthly heat input into all of the boilers:

$$\left( \frac{\text{gal \#2 fuel oil}}{\text{month}} \right) \left( \frac{0.14 \text{ MMBtu}}{\text{gal \#2 fuel oil}} \right) + \left( \frac{\text{gal \#6 fuel oil}}{\text{month}} \right) \left( \frac{0.15 \text{ MMBtu}}{\text{gal \#6 fuel oil}} \right) + \left( \frac{\text{scf nat. gas}}{\text{month}} \right) \left( \frac{0.00102 \text{ MMBtu}}{\text{scf nat. gas}} \right) = \frac{\text{MMBtu heat input to boilers}}{\text{month}}$$

(22) **Annual Emission Statement**

In accordance with MEDEP Chapter 137, the licensee shall annually report to the Department, by **September 1**, the information necessary to accurately update the State's emission inventory by means of:

- 1) A computer program and accompanying instructions supplied by the Department;  
or
- 2) A written emission statement containing the information required in MEDEP Chapter 137.

Reports and questions should be directed to:

Attn: Criteria Emission Inventory Coordinator  
Maine DEP

Bureau of Air Quality  
17 State House Station  
Augusta, ME 04333-0017  
Phone: (207) 287-2437

- (23) EMMC shall pay the annual air emission license fee within 30 days of **May 30th** of each year. Pursuant to 38 MRSA §353-A, failure to pay this annual fee in the stated timeframe is sufficient grounds for revocation of the license under 38 MRSA §341-D, subsection 3.

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(24) The term of this order shall be for five (5) years from the signature date below.

DONE AND DATED IN AUGUSTA, MAINE THIS                      DAY OF                      2003.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: \_\_\_\_\_  
BROOKE E. BARNES, ACTING COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: September 20, 2002

Date of application acceptance: September 23, 2002

Date filed with Board of Environmental Protection: \_\_\_\_\_

This order prepared by Mark. E. Roberts, Bureau of Air Quality